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10/597,626

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Yosi Shacham-Diamond

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DARBY & DARBY P.C.

P.O. BOX 770

Church Street Station

New York, NY 10008-0770

EXAMINER

BAREFORD, KATHERINE A

ART UNIT

PAPER NUMBER

1715

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/597,626	<b>Applicant(s)</b> SHACHAM-DIAMOND ET AL.	
	<b>Examiner</b> Katherine A. Bareford	<b>Art Unit</b> 1715	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 31,32,40-50,53,54,64,116,130 and 132 is/are pending in the application.
- 4a) Of the above claim(s) 31,32,40,64,116 and 132 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 41-50,53,54 and 130 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. The amendment of March 15, 2010 has been received and entered. With the entry of the amendment, claims 1-30, 33-39, 51-52, 55-63, 65-115, 117-129, 131 and 133 are canceled, and claims 31, 32, 40, 64, 116 and 132 are withdrawn, and claims 41-50, 53, 54 and 130 are pending for examination.

### *Election/Restrictions*

2. Claims 31, 32, 40, 64, 116 and 132 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on November 10, 2009.

### *Specification*

3. The amendment filed March 15, 2010 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

the amendment to page 9 to provide the chelator of "ethylenediaminetetraacetic acid" is new matter, as no support has been provided that this is what is meant by "EDTA" as provided in the disclosure as filed. In the amendment of March 15, 2010, applicant's attorney argues that the term "EDTA" is well known in the art, and the

amendment does not constitute new matter. However, applicant's attorney has provided no showing as to this. As noted in MPEP 2145 (I), "The arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a prima facie case of obviousness.>"). Therefore, the objection is maintained.

Applicant is required to cancel the new matter in the reply to this Office Action.

#### *Claim Rejections - 35 USC § 112*

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 41-50, 53 and 54 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

(A) the amendment to claim 41 to provide that the "object is considered to be tarnish-resistant if it has a reflectance of more than 0.6 at 700 nm after a time period of at least one hour of exposure of said tarnish-resistant silver Tungsten coated object to

heated air" contains new matter. The disclosure as filed does not define "tarnish-resistant" as listed in the claim. Applicant refers to page 25 of the specification for support, but this merely provides a description of a graph of reflectance after a specific heat/time treatment, and does not indicate (i) that this graph defines tarnish resistant or (ii) the general range of time/heat allowed by the claim as opposed to the specific treatment referred to in the graph.

(B) the amendment to claim 45 to provide the chelator of "ethylenediaminetetraacetic acid" is new matter, as no support has been provided that this is what is meant by "EDTA" as provided in the disclosure as filed. In the amendment of March 15, 2010, applicant's attorney argues that the term "EDTA" is well known in the art, and the amendment does not constitute new matter. However, applicant's attorney has provided no showing as to this. As noted in MPEP 2145 (I), "The arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a prima facie case of obviousness."). Therefore, the rejection is maintained.

The other dependent claims do not cure the defects of the claims from which they depend.

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6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 41-50, 53 and 54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 41, last line, "heated air" is unclear as to what is required for air to be considered "heated" – any temperature above room temperature? A specific temperature? For the purpose of Examination, the Examiner understands it to mean any temperature above room temperature, but applicant should clarify what is intended without adding new matter.

The other dependent claims do not cure the defects of the claims from which they depend.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the

various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 41-45, 47-50, 53 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inberg et al "Material and Electrical Properties of Electroless Ag-W Thin Film" (hereinafter Inberg article) in view of Franz (US 3723138) and Ludwig et al (US 3915718).

Claim 41: Inberg article teaches a method of providing a silver-tungsten coated object. Abstract and pages 355-356. An active silver tungsten electroless deposition solution is provided. Page 355. The solution contains soluble silver and tungsten sources, reducing agent and complexing agent. Page 355. Ag-W films were deposited on the object to be plated from the deposition solution. Page 355. The silver tungsten coated object was plated with various amounts of tungsten so as to control the resulting reflectance. Page 357 and Figure 4. For example, a 3.2 atomic wt% tungsten alloy can be provided with a reflectance of more than 0.6 at 700 nm after a time period of 1 hour in free air at 200 degrees C (heated air). Page 357, Figure 4(b). It is also indicated that after annealing the reflectance will actually increase over time at 3.2 atomic wt% tungsten. Page 357. As a result, the resulting coating will be tarnish-resistant.

Inberg article does not teach mixing first and second aqueous solutions and specifically immersing the object in the active electroless deposition solution for a time period sufficient to provide the coating, and that the first solution contains the silver ions, tungsten ions and polyethylene glycol. However, Franz teaches that when providing silver electroless plating solutions, it is well known to provide an active solution with silver metal sources, reducing agent, complexing agent and water.

Column 1, lines 35-45 and column 2, lines 55-60. The active solution is typically formed by mixing a second aqueous solution with a reducing agent and a first aqueous solution that contains the silver source just prior to plating. Column 1, lines 35-45 and column 3, lines 50-60. Franz further teaches that it is well known to provide electroless plating by dipping (immersing) the object to be coated in the active electroless plating solution.

Column 4, lines 20-25. Franz further teaches that plating is applied for a controlled amount of time. Column 3, line 50 through column 4, line 20. Ludwig teaches that it is further known to add materials such as polyethylene glycol (column 4, line 3, column 8, example 6) to silver electroless plating solutions (column 1, lines 40-50, column 4, lines 20-55) to increase the rate of deposition (column 3, line 55 through column 4, lines 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Inberg article to form the active electroless deposition solutions by mixing together aqueous solutions of reducing agent and metal sources as suggested by Franz in order to provide a desirable plating solution as Inberg article provides modifying a silver electroless plating solution by adding tungsten and Franz teaches



conventional methods for forming aqueous silver plating solutions that would apply to Inberg article as well since it is a modification of conventional silver electroless plating. It further would have been obvious to modify Inberg article to specifically immerse the object to be plated in the plating solution for a set amount of time as suggested by Franz in order to provide a desirable plating as Inberg article provides modifying a silver electroless plating solution by adding tungsten and then plating and Franz teaches conventional methods for forming aqueous silver plating solutions and thereafter plating that would apply to Inberg article as well since it is a modification of conventional silver electroless plating. It further would have been obvious to modify Inberg article in view of Franz to further add polyethylene glycol to the first solution as suggested by Ludwig to provide desirable plating acceleration, because Inberg in view of Franz teaches combining solutions of (a) metal sources and other additives (Franz, column 3, lines 50-60) and (b) reducing agent to provide a silver electroless plating solution, and Ludwig shows the desire to have an additional additive for electroless plating solutions such as polyethylene glycol to accelerate plating.

Claim 42: Inberg article provides that the plating solution would contain ammonium acetate (page 355). It would be provided in the first solution, as Franz shows to place additives in the first solution.

Claim 43: Inberg article provides that the reducing agent is hydrazine hydrate. Page 355. Franz provides that the second solution comprises a reducing agent. Column 1, lines 35-45.

Claim 44-45: Inberg article teaches that the active plating solution contains a chelator (another name for complexing agent) such as ammonia. Page 355. Franz provides that as well as ammonia, EDTA can be used as a complexing agent for silver electroless plating solutions. Column 2, lines 55-60. As a result, it would have been obvious to modify Inberg article in view of Franz to further use EDTA as a complexing agent rather than ammonia with an expectation of similar plating results, since Franz teaches that either EDTA or ammonia provides desirable complexing for silver electroless plating solutions. It further would have been obvious to provide the reducing agent in the first solution with the metal ions, because Franz shows that the metal ions containing solution can have complexing agent such as ammonium hydroxide (ammonia) (column 2, lines 65-72).

Claims 47-50: Inberg article provides that the article to be plated can be a metallic object, such as a silver object (which would be inclusive of an object with a metallic layer/silver layer, given the teaching of silver plate as the silver object in claim 50. Moreover, since the surface to be plated is silver, the entire article to be plated could be such a silver material with an expectation of similar plating results, because the surface to be plated remains the same). Pages 356, 357 (deposit on Ag seed layer of sputtered Ag). Inberg article further suggests that the silver object be used for electrical purposes and thus be an electrical object (page 355). As to claim 50, it would be obvious that that silver object can comprise fine silver with an expectation of similar results as the "comprise" indicates that the silver can be a silver layer, and Inberg article teaches

simply sputtering Ag, which would indicate, at the least, that a 100% silver layer can be formed and used.

Claims 53-54: Inberg article provides that the article to be plated can be a non-metallic object such as an inorganic material (silicon). Page 355 (p-type silicon wafers). Franz also teaches silver plating on the inorganic, non-metallic material of glass. Column 1, lines 15-25.

11. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inberg article in view of Franz and Ludwig as applied to claims 41-45, 47-50 and 53-54 above, and further in view of Redline et al (US 6773757).

Inberg article in view of Franz and Ludwig teaches all the features of this claim except the use of benzotriazole in the first solution.

Redline teaches that when providing an immersion or electroless silver plating solution, it can be desirable to include an imidazole, benzimidazole, or imidazole derivative or triazole derivative. Column 2, line 65 through column 3, line 1, column 3, lines 20-35. Redline indicates that known triazole derivatives would be benzotriazoles. Column 5, lines 15-20. Redline indicates that the imidazole help the electroless plating be brighter, smoother and more cohesive (column 4, lines 15-25), and this would apparently apply to triazoles as well, given the grouping with imidazoles.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Inberg article in view of Franz and Ludwig to further

use benzotriazoles in the first solution as suggested by Redline in order to provide a desirably brighter plating solution as Inberg article indicates brighteners can be added (page 355), Franz indicates to add the additives to the first solution with the metal ions, and Redline indicates that benzotriazoles can desirably be added to silver electroless plating solutions, apparently to improve brightness.

12. Claim 130 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seshan et al (US 2003/0132766) in view of Franz (US 3723138) alone, or optionally, further in view of Wojtasik "New Contact Material Silver – Tungsten – Rhenium" (Abstract) (hereinafter Wojtasik article).

Claim 130: Seshan teaches that it is well known to plate combinations of metals on substrates by electroless plating, where the combination of metals, as desired can include silver (primary metal), tungsten and rhenium (secondary metals), from a selection of the possible listed metals. Paragraphs [0020] – [0023], claim 9.

(A) As to Seshan in view of Franz alone: Seshan teaches all the features of this claim except the plating in the plating composition for a sufficient time to plate the surface with the silver, tungsten and rhenium layer. The plating of the combination of silver, tungsten and rhenium would be obvious from optimizing from the specific list of possible material combinations given by Seshan. However, Franz teaches that when providing silver electroless plating solutions, it is well known to provide an active solution with silver metal sources, reducing agent, complexing agent and water.

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Column 1, lines 35-45 and column 2, lines 55-60. Franz further teaches that it is well known to provide electroless plating by dipping (immersing) the object to be coated in the active electroless plating solution. Column 4, lines 20-25. Franz further teaches that plating is applied for a controlled amount of time. Column 3, line 50 through column 4, line 20. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Seshan to specifically immerse the object to be plated in the plating solution for a set amount of time as suggested by Franz in order to provide a desirable plating as Seshan provides using an electroless plating process to provide plating that can include silver metal alloys with tungsten and rhenium and Franz teaches conventional methods for forming aqueous silver plating solutions and thereafter plating that would apply to Seshan as well since it acts as a modification of conventional silver electroless plating.

(B) As to Seshan in view of Franz and Wojtasik article: Seshan teaches all the features of this claim except the plating in the plating composition for a sufficient time to plate the surface with the silver, tungsten and rhenium layer, and the specific selection of the silver-tungsten-rhenium metals. However, Franz teaches that when providing silver electroless plating solutions, it is well known to provide an active solution with silver metal sources, reducing agent, complexing agent and water.

Column 1, lines 35-45 and column 2, lines 55-60. Franz further teaches that it is well known to provide electroless plating by dipping (immersing) the object to be coated in the active electroless plating solution. Column 4, lines 20-25. Franz further teaches that

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plating is applied for a controlled amount of time. Column 3, line 50 through column 4, line 20. Wojtasik article teaches that it is known to desirably want to use a combination of silver-tungsten-rhenium to make switches, for example (abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Seshan to specifically immerse the object to be plated in the plating solution for a set amount of time as suggested by Franz and to select silver, tungsten and rhenium as the materials to be plated as suggested by Wojtasik article in order to provide a desirable plating as Seshan provides using an electroless plating process to provide plating that can include silver metal alloys with tungsten and rhenium and Franz teaches conventional methods for forming aqueous silver plating solutions and thereafter plating that would apply to Seshan as well since it acts as a modification of conventional silver electroless plating, and Wojtasik article indicates that the specific selection of silver-tungsten-rhenium as metals to be plated would provide a desirable material combination to use.

13. Japan 01-209783 provides electroless plating using a combination of metals that can include silver, tungsten and rhenium (abstract).

14. The rejection of claim 130 under 35 U.S.C. 103(a) as being unpatentable over Akram et al (US 6188232) in view of Franz (US 3723138) is withdrawn due to the amendments to claim 130 provided March 15, 2010.

*Response to Arguments*

15. Applicant's arguments with respect to claims 41-50, 53, 54 and 130 have been considered but are moot in view of the new ground(s) of rejection.

Ludwig has been provided as to the use of polyethylene glycol in the plating solution. Redline has been provided as to the use of the benzotriazole. Seshan and Wojtasik article have been provided as to the plating of silver-tungsten-rhenium.

*Conclusion*

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Katherine A. Bareford/  
Primary Examiner, Art Unit 1715